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ABSTRACT

The papers presented at this conference review current research on effective educational practices for low-achieving students and identify those that might be applied to programs funded under Chapter 1 of the Education Consolidation and Improvement Act of 1981. A function assumed by several conference participants was to act as reactor to papers written for a particular session. Critiqued in this report are five papers presented at the session. The papers bring out two salient points. First, the papers taken together state essentially that the way reading and math is being handled in most Chapter 1 programs is ultimately dysfunctional for the target children, but that the addition of a separate thinking skills program would be welcome. Second, two of the papers indicate that the research designed to develop generic principles of instruction does not yield specific prescriptions for teaching but rather has generated a set of concepts which are useful in deliberating about teaching decisions in particular contexts. The report goes on to discuss the following issues pointed out by the assessment papers: (1) goals for Chapter 1 students; (2) characteristics of the learners; (3) subject matter; (4) the role of the teacher; and (5) milieu. Though the papers offer no simple solutions, they raise critical questions about such topics as minimum standards, individual differences, test-driven instructional strategies, and equity and excellence. A list of references is included. (PS)

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CURRICULUM AND INSTRUCTION: REACTIONS

by

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In reading these papers, I was constantly interrupted by vivid memories of my own introduction to alternative designs in compensatory education almost 20 years ago. My teachers were 25 eleven- to fourteen-year-old girls in an all Black junior high school in inner-city Cleveland. We were together every morning for thematically oriented instruction in English, social studies, math and science. Obviously the goals of this Title I program were not limited to subject matter learnings--self-image and positive attitudes about learning, school, community and others were of central concern. To paraphrase Brophy, my response was eclectic--at first often desperate, spontaneous and experimental and, then, more playful as the year progressed. Although few miracles happened and there are many things I wish I had done differently, for most of my seventh graders it was a good year--active involvement in school, academic progress, a sense of belonging, good times, pride in their accomplishments, no pregnancies, 28 consecutive days of 100 percent attendance and a positive relationship with a White teacher in a year marked by assassinations and racial riots. I do not know how much they gained over their entering second to fifth-grade achievement test scores--fortunately for all of us, that was not the measure of success then. They were convinced that they were the best of the six Title I classes--and so was I. I was stunned when I found out the last week of school that I had the bottom section. The power of positive expectations, now confirmed by research, made a lasting impression on me.

But my girls did more than confirm my faith in expectations--they taught me in the most powerful way that there are only "alternative designs" in teaching. Schooled in an affluent public school, a seven sister college, an ivy league graduate school, I entered teaching with certain idealistic conceptions on humane, progressive, academically rigorous education. Yet I found that the only way to hang on to my ideals meant to be open to "alternatives" which I had previously rejected--behavior modification, rote learning drills and even once succumbing to a very common practice in the school, paddling (Zumwalt, 1984). While I was being more playfully eclectic as I taught, the importance of alternate strategies literally hit home the day Robin finally learned to subtract two and three digit numbers. I had just begun to experiment with a new strategy to handle math because the individualized self-pacing materials were no longer engaging the students productively. In Brophy and Wilkinson's terms, I wanted to increase time-on-task and active teaching and learning. While I met with a small group, I had other students working in carefully matched pairs at the blackboard. The "teacher" student was to teach the student the computation

skill I had identified for each student. They were excitedly working and I was enjoying my uninterrupted time with my small group when out of the corner of my eye, I saw Tillie hit Robin. Since Robin wasn't complaining I decided not to intervene. But after several more hits, I felt compelled to rescue Robin. When I asked Tillie why she was hitting Robin, she quickly responded, "That's the only way she's going to learn." And much to my amazement Robin did learn to subtract that day.

Now I'm sure this is not what the researchers had in mind when extolling the values of "corrective feedback" and I can assure you that I never adopted the technique nor would encourage anyone else to do so, but it has served as a vivid reminder to me through the years of the value of openness, flexibility and awareness of a range of approaches. Being initiated into teaching through compensatory education in Boston and Cleveland has definitely shaped my view of teaching as being deliberative--bringing to bear one's experience, intuition, values, understanding of particular learners, subject matter, context, pedagogical knowledge and skills in a fast-paced, continuous, complex problem solving and decision-making process about ends as well as means (Zumwalt, 1982).

As I read these five papers, I kept asking myself what meaning they might have for teachers who share this view of teaching and who are working with low-achieving students in compensatory education programs. After reviewing the "messages" of these papers, I will raise some curricular and instructional issues particularly salient for low-achieving students in compensatory programs suggested by these papers.

The Messages

Because of the assignment of topics for the conference, three authors (Calfee, Romberg, Adams) focus on curricular issues and two authors (Brophy, Wilkinson) focus on instructional issues. Taking these divisions for the time being, what do they suggest?

Curriculum Papers

Calfee, in addressing reading, and Romberg, in addressing mathematics, ask us to question our goals in these areas, as well as the way instructional strategies have particularly distorted what children are learning in compensatory education programs about these two subjects. Adams asks us to give more than lip service to our long-held goals of teaching students to think by establishing a separate course which teaches thinking directly.

Calfee asks us to rethink the goals of our reading instruction. It is all too easy to let our goals become the completion of a set of curricular materials and more than expected gain on standardized reading achievement tests. Instead, he proposes that we aim for the "literate person"—a person who can competently "send" (speak, write) as well as "receive" (listen, read). Like the authors of Becoming a Nation of Readers (Anderson, Heibert, Scott, & Wilkinson, 1985), who define reading as "a process of constructing meaning from written texts," Calfee believes his goal demands more attention to comprehension and to integrating the reading, writing and oral language aspects of literacy. While believing his goal is not presently being achieved even in the most advantaged settings, he asserts that the present methods for promoting literacy are "virtually pathological for the child from a lower-class home" (p. IV-43). The negative impact of ability grouping, pullout programs and use of paraprofessionals to remediate reading—all practices found in Chapter 1 programs-are compounded by remedial reading programs which take the learner through a piecemeal sequence of unconnected objectives with heavy reliance on workbooks, an emphasis on decoding to the neglect of comprehension, and an insistence on mastery before moving on. Instead he feels "all youngsters should be treated as if they can handle the job" (p. IV-49) and be provided a coherent, integrated approach to literacy. Given his goals, he believes compensatory education should focus on the well-being of the school as an educational organization rather than target the individual.

Actually Romberg's message about math is strikingly similar to Calfee's about reading. For too many children, he asserts, math has become merely a sequential mastery of one concept and skill after another, the curriculum has become defined by the fragmented, skills approach of workbooks and judged by narrowly constructed achievement tests. What is missing is the interconnectedness of ideas—the viewing of "math as a language and a science which orders the universe, a tool for representing situations, defining relationships, solving problems, and thinking" (p. IV-17). The emphasis of mathematics education should be on "creating knowledge rather than absorbing the history of other people's knowledge" (p. IV-19). The teacher should "provide the environment, act as mentor and get out of the way" (p. IV-20). Like Calfee, he believes his goals are far from being achieved for most students, and feels that most compensatory programs tend to "widen the gap of knowledge about math between those who are affluent in our society and those who are not" (p. IV-14). Programs, be they compensatory or not, which focus on mastery of procedural skills, do not give low-income children "the opportunity to do important mathematics" (p.IV-11). For him this differential opportunity then is not limited to low-achieving Chapter 1 students but to all low-income students

(Anyon, 1981; Popkewitz, Tabachnick, & Wehlage, 1982). Having answered the "what should be taught question," he ends raising the political question of "who gets taught" and who should make this decision (p. IV-20). Right now the current resolution of this enduring curriculum question favors the perpetuation of the present unequal distribution of mathematical knowledge--Chapter 1 programs while appearing to remediate are, in the process of doing so, widening the knowledge gap.

Adams, in her paper on teaching thinking, literally appears to pull us in the opposite direction of Calfee and Romberg. She argues for the inclusion of a course on thinking separate from the regular curriculum. She believes the direct teaching of thinking skills to Chapter 1 students "promises to be the best institutionalizable means of developing the competencies and attitudes they need to make the most of their schooling and their lives" (p. IV-115). She offers some useful criteria (transfer, individual differences, and useability) to judge the appropriateness of thinking programs and suggests that any one of the six reviewed might be "a very good candidate for implementation...depending on a classroom's particular needs and constraints" (p. IV-114). Yet none of the programs offers the needed balance of the macrological and micrological approaches nor is as easily usable with low-achieving students as the Odyssey curriculum newly developed by her firm. The Odyssey curriculum, tested in the barrios of Venezuela, is a "content-rich, process-centered design in which the macrological is systematically built upon the micrological" (p. IV-106). It uses the Socratic method and structured discovery. She argues that such an explicitly and methodically developed separate course has greater transfer, is more easily implemented, and is more useful for low-achieving students. Such an approach to thinking is obviously suited to a Chapter 1 pullout program taught by someone other than the classroom teacher-and, in many ways, seems similar to the current skills-oriented remediation approach used in math and reading. (In an informal conversation at the Conference, however, Adams remarked that the course has been most effective when taught by the classroom teacher.)

In terms of curriculum, these papers taken together are essentially telling us that the way reading and math is being handled in most Chapter 1 programs is ultimately dysfunctional for the children we are trying to help, but that the addition of a separate thinking skills program would be a welcomed addition. Calfee and Romberg's positions pull us back to more holistic, integrated classroom approaches in reading and math while Adams wants thinking pulled out of the regular classroom curriculum as a separate, explicitly sequentially developed course, assumedly either in a pullout program or as a separate course in the classroom.

Instructional Papers

Before considering questions and issues raised by these three papers, let us first turn to the two papers in which the authors were asked to focus on instructional issues. Unlike the three papers on curriculum which tell us what we are doing (reading, math) or are not doing (thinking) is essentially wrong-headed, Brophy and Wilkinson indicate that the research designed to develop generic principles of instruction does not yield specific prescriptions for teaching but rather has generated a set of concepts which are useful in deliberating about teaching decisions in particular contexts.

In characteristic comprehensiveness, Brophy reviews the recent literature on teaching for patterns that cut across several lines of research. Given usual class size and heterogeneity, he argues that the predominant pattern of instruction (traditional whole-class instruction/recitation/seat work) is the compromise chosen by the majority of teachers as they trade off "classroom management benefits against costs in instructional quality and efficiency" (p. IV-123). From the perspective of traditional instruction, he concludes that effectiveness, as defined by gains in standardized achievement tests, is influenced by the amount of time students are engaged in appropriate academic activity. Student engagement is maximized by "active teaching," where the teacher carries the content personally rather than depends on curricular material, relates material to what students already know, monitors their performance, and provides corrective feedback through recitation, drill, practice, and application activities. But Brophy notes that grade level, subject matter, the nature and objectives of the activities, and student characteristics may modify this definition of effective teaching. And depending on class size, available aides, available material and assignments for differentiated instruction, teacher planning and management skills, any combination of whole-group, small-group, or individual instruction might work. Noting that few teachers have the resources and class size to successfully offer individual instruction, he views the traditional whole-class/recitation/seat-work pattern as an understandable compromise.

Instead of the traditional, whole-class pattern Brophy sees as functional for most teachers, Wilkinson, in specifically addressing the issue of grouping within the classroom, encourages teachers to consider some variant of cooperative learning groups. She believes the research shows benefit for some students in small, heterogeneous ability groups. Such groups increase the low-achieving student's involvement in task, active learning, and opportunity for providing and receiving conceptual-sequencing explanations. In contrasts to her guarded recommendation of heterogeneous, cooperative learning groups is her indictment of homogeneous ability

grouping as "detrimental to learning for students assigned to low groups" (p. IV-186). While viewing the use of flexible instructional groups and cooperative learning, in particular, as promising, Wilkinson believes many important questions about the consequences of grouping remain unanswered.

Issues and Questions

As I read this set of papers I view them as rich sources for deliberation about teaching Chapter 1 students because of the issues they raise directly and indirectly. While Brophy and Wilkinson are appropriately and explicitly cautious about drawing policy prescriptions from their reviews, their clear presentation of the literature makes the issues for deliberation in a particular context quite clear. If you accept Adams' argument, her recommendation to add a separate, packaged curriculum to teach thinking to Chapter 1 students appears to lead to the most straightforward prescription. Yet she reminds us, despite having a favorite, that "depending on a classroom's particular needs and constraints" any of the seven programs she reviewed or others might be "a very good candidate for implementation" (p. IV-114). Modifying the prescription even further are the papers by Calfee and Romberg. In their rejection of similar approaches to reading and mathematics, they cast a shadow on unthinking acceptance of such an approach to teaching thinking. Their papers lead us to question the dominant approach to reading and mathematics, not only for Chapter 1 students, but for all our students. As a set, these papers remind us of the complexity of the task which precludes identification of a curriculum and a set of instructional behaviors which will ensure success for Chapter 1 students. They do, however, provide a wealth of information and perspectives to help us reflect upon, assess and, when appropriate, change our present approaches.

As a starter, let me indicate some of the types of issues and questions these papers raise for consideration. Using a combination of Schwab (1973) and Tyler (1949), a set of commonplaces can be generated to help us focus on the curricular issues raised by these papers. These include: goals, the learners, subject matter, the teacher, milieu. The issues defy neat categorization into commonplaces, but the commonplaces do provide us an analytic tool to help keep our deliberations comprehensive.

Goals

Goals for Chapter 1 students are clearly indicated by the three curriculum writers: developing the literate person (Calfee); creating opportunities for knowing and doing mathematics rather than knowing about mathematics (Romberg); and enhancing students' abilities to face new challenges and to attack novel problems confidently, rationally, and productively (Adams). These goals stand in sharp contrast to the goals given one of my graduate students as she started teaching in a school serving low-income students:

> Literacy Goal: To ensure that our students enter the "minimal" average range of students achieving on or above grade level in reading (50 percent on grade level).
>
> Mathematics Goals: To increase student achievement in mathematics on city-wide standardized tests to the 50 percent on-grade level.

From my experience, goals for Chapter 1 students are often stated in terms similar to these school-wide objectives.

Are Calfee, Romberg and Adams just dreamers unaware of the importance of achievement test scores to success in our society? While Adams argues that the transfer of thinking skills should be evident as gains on achievement test scores, Calfee's conception of literacy and Romberg's conception of mathematics lead to the questioning of achievement test scores as proxies for educational goals for Chapter 1 students. Given the present public infatuation with test scores, the relationship of Calfee's and Romberg's goals to achievement on reading and math tests need further elaboration if their arguments for more holistic, integrative and constructive approaches are to receive a hearing.

Interestingly, in dealing with instructional issues, Brophy raises explicitly the "what should be taught" question. "Policy makers," he says, "need to identify and prioritize educational outcomes they value" (p. IV-124). Most of the process-outcome research he reviews, and much of that reviewed by Wilkinson, has defined outcome/benefit in terms of achievement test scores. Both Brophy and Wilkinson are aware that the present research has not considered the full range of outcomes to be achieved, as well as the unintended consequences of a particular practice. Hence, while valuable, present research which relies heavily on achievement tests does have a tendency to reinforce the idea that achievement test scores should be the goal of education. Brophy reminds us that "policy makers must set priorities amongst the goals on the basis of values, not science" (p. IV-162). The question remains whether policy

makers' visions of educational goals can be extended beyond achievement test scores.

While one might argue that test scores are generally seen as minimum goals rather than the only goals of education, for students, such as those being served by Chapter 1 programs, they often become the goals because improvement on tests is the primary way one may leave Chapter 1 and the primary way the program is evaluated. In looking at what Title I students were not getting as instruction in math and reading remediation increased, Carter (1984) concludes that "it is not clear that Title I students enjoyed a net gain in total instruction" (p. IV-5). The narrowing of goals in Chapter 1 programs and in lowachieving schools to test score improvement while achieving and more economically privileged students are exposed to more expansive goals raises the question of equity. Is it necessary and desirable to focus students' education primarily on minimal test score achievement before other goals are considered?

Learners

Having been schooled during the heyday of Title I programs, perhaps the most striking feature of this set of papers for me was the lack of attention to the characteristics of low-achieving, low-income students and the ensuing consequences for curriculum and instruction. At first I wondered whether the authors were aware of the past literature describing the intellectual, social, emotional, linguistic characteristics of low-income, low-achieving, often minority, students. Upon later readings, I realized that they had either conscientiously rejected the current use of such distinctions as being detrimental (Calfee, Romberg) or unimportant (Brophy) or had considered such distinctions as an integral part of their argument without the elaborated descriptions necessary 20 years ago (Adams, Wilkinson).

Rejecting "the kid's the fault" line of reasoning, Calfee places blame on prevailing school practices which are "pathological for the child from the lower-class home" (p. IV-43). Mistakenly believing that the students have few relevant experiences and cannot think, schools offer these students a detailed, piecemeal sequence of unconnected objectives and force repetitive practice aimed at mastery. These practices accentuate the differences between lower- and middle-class children and between high achievers and low achievers, and preclude development of the literate person which Calfee feels is an appropriate goal for all students. He urges that instead of differentiating the curriculum, we "treat all youngsters as if they can handle the job" (p. IV-49) and provide coherent, more holistic programs which integrate the reading, writing and language aspects of literacy.

Likewise Romberg is critical of compensatory math programs which appear to ignore any assessment of students' common misconceptions and particular deficiencies of low-income, low-achieving students beyond rate of learning. Instead math for them becomes the specific procedural skills of arithmetic which they will confront on standardized achievement tests. Compensatory programs focused on remediating such skills, Romberg believes, widen the gap between the advantaged and disadvantaged in our society. Like Calfee, Romberg believes his goal of having students know and do important mathematics is an appropriate goal for all students. Since he believes the starting point for all students is the structure of mathematical knowledge already created by the student, all students can "constantly extend the structure of mathematics they know by making, testing and validating conjectures which may originate as postulates of conscious thought or be derived intuitively" (p. IV-18). But since students bring with them individual differences, whether all students get taught mathematics and how they get taught it, which also influences the outcomes is a serious, political question according to Romberg. He describes how various interest groups claim they have the knowledge of cultural determinants, social and personal characteristics, and the ideology of individualism. Whether schools could adapt to individual differences, compensate for differences, offer different curriculum for different students or leave the option to students are the questions Romberg views as central for debate and discussion. Ignoring deliberation of this important curriculum issue of "who gets taught what and how" throws us back into the present unacceptable condition of compensatory math programs which increase initial differences between achieving and low-achieving students by relegating the latter to endless attempts to master specific procedural skills of arithmetic. So while Romberg, like Calfee, rejects the current approaches to Chapter 1 and believes his more expansive goal is appropriate for all students, he also recognizes that individual differences go beyond expectations cited by Calfee and demand some critical curricular decisions about who gets taught what and how.

Insensitivity to individual differences, Adams believes, is especially critical when dealing with Chapter 1 students whose "knowledge, skills and interests tend to be unpredictable both within and across individuals" (p. IV-99). Students' minimal reading, writing, and specialized knowledge favors process- oriented programs and puts such macrological approaches like Philosophy for Children out of reach for low-achieving students. Abstract exercises, typical of micrological approaches, "which are relatively meaningless by definition and remove conceptual distraction potentiated by content-rich exercises" (p. IV-100) are also appealing. But Adams recognizes the problem of such micro approaches. Although seemingly matching learner characteristics, they deny

the learner access to the knowledge necessary for social mobility and minimize the potential for transfer of thinking skills to other contexts. The Odyssey program developed by her firm has sought to balance micrological and macrological approaches in an attempt to deal directly with the dilemma posed by both Calfee and Romberg when attention to apparent learner differences create further learner differences.

Brophy takes another stand on individual differences by claiming that except for "the modest literature of specific learning disabilities," there is little evidence for the need to consider "qualitatively different forms of instruction for students who differ in aptitude, achievement level, socio-economic status, ethnicity or learning style" (p. IV-122). In essence, he interprets the literature as saying low SES students and students in special settings just need more of what other students need: more control and structuring from the teachers, more active instruction and feedback, more redundancy, smaller steps with higher success rate, more encouragement, more personalized and supportive interaction. Thus, he advocates more review, drill, and practice, more low-level questions, less coverage and more mastery for Chapter 1 students. Calfee and Romberg would obviously disagree that this approach is just quantitatively different--they believe it has lead to qualitatively different opportunities and outcomes for compensatory education students. And they would probably suggest that Brophy's findings is not surprising given his reliance on process-outcome studies which he admits look at the narrow range of outcomes defined by achievement tests.

Actually, there is one characteristic of low-achieving students which Brophy thinks may need special attention. Chapter 1 students are "most likely to need heavy doses of strategy training" (p. IV-150). Unlike able students, these students tend not to "develop well functioning cognitive strategies and metacognitive awareness and monitoring skills" (p. IV-150) on their own. On this point, he would get support from Adams.

And when there are high concentrations of students with serious reading difficulties or behavior problems, Brophy questions the feasibility of implementing the cooperative learning groups which seem a promising approach to Wilkinson. Not only may the students be unprepared to handle the increased responsibility and autonomy, but the groups no longer have the heterogeneous range of students central to such an approach.

Wilkinson, however, believes that heterogeneous cooperative learning groups may give the low-achieving student what he needs: more regulation by others to guide and monitor progress through steps of the assignment, more procedural-conceptual sequencing explanations, and greater participation in task-

related activity. While they might have to be taught directly how to interact effectively in small groups, she feels such an approach is a better match of their needs than whole group instruction--an argument Brophy would question--and certainly better than homogeneous grouping which may match learner needs but has detrimental effects for students assigned to the low groups because of differences in instructional processes, the learning environment, and how students and teachers interact.

As a set, these papers not only present different views on accommodating learner characteristics in Chapter 1 programs, but raise a critical dilemma. Not to be responsive to individual differences in designing curriculum is seen as irresponsible; yet a program which offers a modified curriculum seemingly to meet the differentiated needs of learners may create even greater differences between learners in their opportunity to learn valued knowledge. While raising expectations, exposing students to a thinking program like Odyssey, employing cooperative learning groups, giving students cognitive strategy training might alleviate some learner differences, I suspect substantial differences will remain and Romberg's questions about "who gets taught what and how" become the critical ones.

Subject Matter

Most attention to subject matter in these papers is understandably found in the Calfee, Romberg and Adams papers, but the two instructional papers are relevant in helping illuminate the problems in ignoring the intertwining of curriculum and instructional issues in the teaching process (Zumwalt, 1986).

Calfee, Romberg, and Adams view the current conceptions of reading, mathematics, and thinking as inappropriate for all students, but particularly handicapping for Chapter 1 students. Calfee and Romberg share holistic, integrated, constructive notions of literacy and mathematics. They reject current conceptions of school subjects which consist of discrete, unconnected skills and concepts to be mastered sequentially in piecemeal fashion with heavy reliance on workbooks/ditto sheets entailing repetitive practice in decoding and in basic arithmetic procedures to the neglect of comprehension and creating mathematical knowledge. While very sympathetic to both Calfee's and Romberg's views of education and their subjects, my own experience makes it much easier to envision the approach to literacy even though I find Calfee's statement about a more straightforward curriculum with tasks rendered in more explicit fashion and adequate instruction in the tasks somewhat enigmatic. Especially for those of us not schooled adequately in mathematics, Romberg needs to find a way to mimic the "generative" characteristics of the approach he rejects or at least provide us with some rich descriptions of what knowing and

doing math should look like as a school subject. Otherwise, his approach has no chance against the dominant view expressed by a district director of instruction in last week's New York Times. In explaining why his primary students are now spending all their time on "basic" skills rather than probability, statistics and more esoteric topics, he succinctly comments, "We tried to cut out all the extra junk" (Fiske, 1986).

In contrast to Romberg and Calfee, Adams asks us to take the teaching of thinking skills in the opposite direction because she views thinking as a school subject to consist of a set of generic skills. These skills are most effectively conceived explicitly and methodically "over as diverse a set of content-specific and intellectually complex extensions as we could squeeze in" (p. IV-110). She believes that the only "rational path" to developing "critical but open-minded, flexible, and nonegocentric thinking skills of the dialectic" is through the direct and methodical teaching of identified critical and analytic skills. This conception of subject matter (and learning) sounds strikingly similar to that of reading and mathematics which Calfee and Romberg reject as being inappropriate. One wonders whether the "thinking specialists" are just on a different side of the swinging pendulum than the reading and math specialists, whether "thinking" as a school subject is uniquely different from reading and math, or whether "thinking" as a relatively new school subject has to go through the explicit and methodical definition of skills and subskills as did reading and math, primarily to give adults some understanding and control over what is to be taught. While keeping an open-mind on the potential uses of separate thinking skills curriculum but being sympathetic to Romberg and Calfee's views of the destruction of reading and math as school subjects, I find that Adams does not convince me that a contrasting view of the developing of thinking should be rejected. This view more in line with Calfee and Romberg's constructivist orientation, views teacher mediation, not prescribed curriculum sequences, as the critical variable in fostering student thought (Grennon, 1984).

While Brophy and Wilkinson, in focusing on instructional issues do not explicitly take sides on the nature of school subject matter, when drawing conclusions about generic principles of teaching from process-outcome research they are admittedly accepting the approach to subject matter conceptualized in standardized achievement tests--an approach rejected by Calfee and Romberg in reading and math and accepted by Adams in teaching thinking. Brophy appropriately warns that his conclusions drawn from process-outcome research only apply "to instruction in any body of knowledge or set of skills that has been sufficiently well organized and analyzed so that it can be presented systematically and then practiced or applied during activities that call for student performance that can be

evaluated for quality and (where incorrect or imperfect) given corrective feedback" (p. IV-164). While Adams feels the development of basic thinking skills fits such a description, Calfee and Romberg are disturbed that the inappropriate adoption of this instructional strategy has distorted school reading and mathematics programs, especially for Chapter 1 students.

Brophy is sensitive to the limitations of generic principles and the likelihood that "most of what is going to be discovered about relatively generalizable process-outcome relationships has already been discovered, and that the most important new contributions to the process-outcome literature in the future will come from studies of instruction in particular grade levels that feature focused attention on the nature of the content or skills to be taught and on related subject matter-specific pedagogy" (p. IV-145). He ends his paper calling for comprehensive attention to both curricular and instructional issues which have been studied by separate groups of researchers and theorists. Such an approach is promising and might see Brophy extending his reasons for the recent failure of mastery learning in Chicago to include an inappropriate conception of literacy and might impress upon curriculum specialists the powerful influence of choice of instructional strategy on shaping school subjects. As Adams reminds us "the content of a curriculum is the medium of instruction" (p. IV-93) and as Wilkinson argues, the intended and unintended consequences of instructional practices, such as grouping, need to be considered as part of the learning outcomes.

For me this set of papers illustrate rather dramatically what happens when curriculum and instruction are treated as separate domains. Such dualism has led to our current situation where an instructional strategy appropriate to certain kinds of content and objectives usually measured on standardized achievement tests has come to define the curriculum for too many students. As the exemplary teachers responding to the Instructional Dimension Study noted, the very act of teaching does or should involve the making of curriculum and instructional decisions (Zumwalt, 1986).

Teachers

On the whole, the authors view teachers as having the responsibility and freedom to make decisions about teaching. They do differ, however, in the degree to which they envision teachers taking such active roles.

Although he does not elaborate his position, Calfee reminds us that "the determination of the actual curriculum for a student is ultimately in the hands of the teacher" (p. IV-36) even in the most prescribed, "teacher-proof" curriculum.

Wilkinson, while advocating student-led groups, often refers to the teacher actively intervening, instructing, reassigning, and altering groups. She urges that teachers become knowledgeable about a variety of grouping practices so that they will "be able to use them in their classes when they believe that it would be helpful to students' learning" (p. IV-194). And Brophy, who views the teacher as actively carrying the content to the students rather than relying on materials, describes the many contextual variables that must be considered before "applying" research findings. The very nature of teaching precludes prescriptions which bypass teacher judgment.

While Adams believes teachers should be encouraged to modify and adapt curricular material, she asserts that "one should not expect teachers to produce the bulk of their instructional materials anymore than one expects medical doctors to invent medicines, actors to direct their own movies, or Presidents to write their own speeches from scratch" (p. IV-104). Some may, but curricula must be "usable and effective in the hands of whichever teachers draw the straw." Hence, Odyssey is a completely scripted program—not to follow verbatim but rather "to provide a detailed and highly imaginable model of the sequence of interactive dialogue and activities through which the embedded lesson plans might be achieved" (p. IV-111). They hope "even the least confident teacher will feel invited to build" (p. IV-112) because such extensions increase the impact of the curriculum. In essence, the curriculum hedges its bets on teachers' ability and willingness to view their role as an active decision maker and constructor of curriculum. Not having examined Odyssey, I am not sure whether this is another "teacher proof" curriculum in disguise or a genuine attempt to be sensitive to teacher time and provide the structure and resources necessary to enable teachers to make more efficient and effective decisions about teaching a "subject" in which few have had explicit preparation.

Clearly Romberg goes the furthest in elaborating a new role for teachers who he feels have been "deskilled" by detailed individualized programs or highly structured programs which take important teaching decisions away from the teacher. "Taken to an extreme, the teacher becomes only a conduit in a system, covering the pages of a program without thinking or consideration" (p. IV-14). He describes a new role for teachers which complements the work of the student. If the emphasis is on the student "creating knowledge rather than absorbing the history of other people's knowledge, the work of the teacher is to support, promote, encourage and in every way facilitate the creation of knowledge by students" (p. IV-20). The teacher "provides the environment, acts as a mentor and gets out of the way" (p. IV-19). Clearly, Romberg is speaking of a different role than teachers play in most American

classrooms and a different role than explicitly described by any of the other authors.

Regardless of which vision of the teacher one accepts, realistically or ideally, all the visions described here suggest an investment in professional development rather than relying on prepackaged curriculum materials (Amarel, 1978). And all suggest a need to pay serious attention to attracting and retaining able people in teaching who are well-educated themselves and who can exercise the judgment and flexibility needed to teach well.

Milieu

In considering the milieu, one could discuss any of the contexts which need consideration in developing curriculum: the classroom, school, school system, neighborhood, city/town/state/nation, or the more amorphous concept of society. For the purposes of this paper let me illustrate by focusing on "societal needs." Most of the authors explicitly acknowledge that the issues they are discussing deal with the sorting function of schools and have implications for social stratification.

Wilkinson touches upon these issues in rejecting homogeneous ability grouping which perpetuates the low status of low-achieving students and in warning of the need for the teacher to intervene in heterogeneous groups so the "nature of the interactional processes" does not reinforce the status quo. Adams touches upon these issues when she rejects the micrological approaches because they deny the low-achieving child access to the knowledge and values necessary to move into and up in our social structure.

Brophy throws back the policy question, explaining that deciding priorities amongst goals is essentially a question of value, not a question of science. Romberg casts the social-political question as not just one of determining what goals are valued, but who gets access to what knowledge and who should make these decisions. He believes ignoring this question has led to the present situation where the gap between advantaged and disadvantaged is not only perpetuated but is widening.

A partial answer to Romberg's question is found in Calfee's paper. He asserts that demographic trends preclude continuation of a selectional system of education—our society does not have enough "easy to educate" youngsters to handle work-force needs. Our society, he maintains, can no longer afford "failure." He sees the convergence of equalitarian concerns (access to quality education not being dependent on student background) and workforce concerns (high number of

literate graduates) as being a hopeful sign that society will commit the resources needed to improve education. Whether such arguments are convincing enough to mobilize forces beyond the rhetoric of reform remains to be seen.

Conclusion

After searching for "some instructional programs that were particularly effective with disadvantaged students" and finding none, Carter (1984) concludes:

> There is a complex interaction between the curriculum, the characteristics of teachers and administrators, the social and economic characteristics of the school, and the background of the students. This leads to the unfortunate situation that in attempting to improve a large number of disadvantaged students, one must improve a large number of educationally relevant factors and there is no simple solution to the problem of improving the education of disadvantaged students. (p. 12)

There is no simple solution found in this set of papers either. Class 7B in Cleveland, Ohio, led me to the same conclusion back in 1968. But they also taught me the value of not giving up—that positive expectations, struggling and experimenting do have their rewards--that teachers can make a difference in the lives of children. There is much in these papers for thoughtful teachers to deliberate about as they actively shape a coherent and stimulating learning environment for their students (Zimilies, 1978).

But teachers, legally and ideationally, are bound by the systems and times in which they themselves learned and now work. In the name of excellence and equity, we have become a test-driven system—tests define the curriculum, indicate success, focus our research, and have become a measure of that which is valued in individuals and schools. The issues raised by this set of papers are the kind that must be addressed by policy makers and other educators, as well as teachers, because they permeate our system, shaping in substantial ways what is happening in classrooms.

Among the critical questions raised by these papers are the following:

- Is it necessary and desirable to focus students' work on achieving minimal test scores in reading and math to the exclusion of other educational goals?

- How can we be responsive to individual differences without widening the differences between individuals in their opportunity to learn valued knowledge?

- How can we break away from the dualistic thinking about curriculum and instruction which has led to the domination of test- driven instructional strategies as the solution to the educational problems of Chapter 1 students?

- How do we facilitate a deliberative approach to teaching, increase the wisdom of teachers' judgments and attract and keep able, well-educated people in teaching?

- How can the concerns of equity and excellence work together, rather than in opposition, to mobilize resources to deal with the complex, enduring problems of providing quality education for all?

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